

What we claim is:

1. A frame transfer method comprising:

a first step of generating, from a received frame, a monitored frame having unique in-device information and a normally-transferred frame; and

a second step of establishing a path corresponding to each of the generated frames.

2. The frame transfer method as claimed in claim 1 wherein the first step comprises a third step of determining whether or not the received frame is to be monitored and of generating, from the received frame, a dual-purpose normally-transferred and monitored frame, and a fourth step of generating, from the dual-purpose frame, the monitored frame and the normally-transferred frame.

3. The frame transfer method as claimed in claim 2 wherein the third step includes steps of determining whether or not the received frame is to be monitored, and generating the dual-purpose frame in which predetermined header information is substituted for header information of the received frame when determining that the received frame is to be monitored, and the fourth step includes steps of multicasting the dual-purpose frame to be outputted by editing header information of one of the multicasted frames for normal transferring and header information of the other frame for monitoring, and further editing both of the multicasted frames with header information respectively corresponding thereto for the second step.

4. The frame transfer method as claimed in claim 3 wherein the predetermined header information of the dual-purpose frame includes a monitored ID as well as information necessary for restoring a normally-transferred ID and information used for monitoring, and the fourth step includes steps of generating two frames in which the monitored ID of the dual-purpose frame is rewritten into an original flag and a monitored flag upon the multicasting, and further

generating the normally-transferred frame and the monitored frame respectively by restoring a normally-transferred ID for header information of the frame having the original flag and rewriting header information of the frame having the monitored flag into a CPU-transferred ID.

5 5. The frame transfer method as claimed in claim 2 wherein the third step includes a step of determining that the received frame is to be monitored based on a destination address in header information of the received frame.

10 6. A frame transfer apparatus comprising:
 a frame processor for generating, from a received frame, a monitored frame having unique in-device information and a normally-transferred frame; and

15 a switch portion for establishing a path corresponding to each of the generated frames by inputting the frames.

20 7. The frame transfer apparatus as claimed in claim 6 wherein the frame processor comprises a network processor for determining whether or not the received frame is to be monitored and for generating, from the received frame, a dual-purpose normally-transferred and monitored frame, and a local switch for generating in cooperation with the network processor, from the dual-purpose frame, the monitored frame and the normally-transferred frame to be transmitted to the switch portion.

25 8. The frame transfer apparatus as claimed in claim 7 wherein the network processor determines whether or not the received frame is to be monitored, and generates the dual-purpose frame in which predetermined header information is substituted for header information of the received frame when determining that the received frame is to be monitored, and the local switch multicasts the dual-purpose frame to be outputted to the network processor by editing header information of one of the multicasted frames for normal

transferring and header information of the other frame for monitoring, and the network processor edits both of the frames with header information respectively corresponding thereto to be transmitted to the switch portion.

5 9. The frame transfer apparatus as claimed in claim 8 wherein the predetermined header information of the dual-purpose frame includes a monitored ID as well as information necessary for restoring a normally-transferred ID and information used for monitoring, and the local switch generates two frames in which the monitored ID of the
10 dual-purpose frame is rewritten into an original flag and a monitored flag upon the multicasting, and the network processor generates the normally-transferred frame and the monitored frame respectively by restoring a normally-transferred ID for header information of the frame having the original flag and rewriting header information of the
15 frame having the monitored flag into a CPU-transferred ID.

10. The frame transfer apparatus as claimed in claim 7 wherein the network processor determines that the received frame is to be monitored based on a destination address in header information of the received frame.

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